REMARKS

Reconsideration of the present application is respectfully requested.

Independent claims 1, 15 and 20 have been amended to more clearly distinguish over the prior art.

Claim 1 has been amended by reciting therein a piston case and a driver sub connected to a lower end of the piston case to form therewith a tubular structure. The claim also recites that an upper portion of the retention sleeve is axially movable relative to the tubular structure, and that the tubular structure includes a stop structure (e.g., flange 47 in the disclosed preferred embodiment) which limits the downward axial travel of the retention sleeve relative to the tubular structure.

It will be appreciated that the claimed structure prevents the drill bit from being axially separated from the piston case/driver sub assembly, even if the normal connection between the bit head and the driver sub becomes broken.

Original claim 1 was rejected over Rear, which discloses a drill string in which a sleeve 16 connected to the bit head 12. However, the sleeve is not intended to keep the bit head attached to the tubular structure defined by the driver sub and the piston case 19. Rather, the sleeve 16 functions to connect the bit head to an outer casing 13 which is pulled downwardly by the drill string in order to line the hole being drilled. In other words, Rear's tubular structure does not include a stop structure as recited in present claim 1. In Rear, the stop structure is not formed on any part of the drill string, but rather is formed on the casing 13. Thus, it will be appreciated that claim 1 is directed to a different structure and function than Rear, and it is submitted that claim 1 is allowable.

Independent claim 15 recites that the bit head is rotatable relative to the retention sleeve about a center axis of the sleeve, the bit head being axially immovable relative to the retention sleeve in all rotational positions of the bit head relative to the retention sleeve.

Original claim 15 was rejected over Rear, which discloses a connection between the sleeve 16 and the bit head in the form of circumferentially discontinuous grooves 24 and splines 25. Thus, the bit head is rotatable relative to the sleeve, but in some of the rotational positions, the bit head is axially removable from the sleeve, in contrast to the invention defined by claim 15 wherein the sleeve is axially immovable in all rotational positions of the bit head relative to the sleeve. Thus, it is submitted that claim 15 is allowable.

Independent method claim 20 has been amended to recite the tubular structure and the step of attaching the sleeve to the tubular structure. As discussed above in connection with claim 1, Rear attaches his sleeve to the outer casing 13, not to the piston case/driver sub assembly. Accordingly, it is submitted that claim 15 is allowable.

The informalities noted in the abstract and specification have been corrected, and paragraph 0010 has been amended to provide antecedent basis for the expression "tubular structure" now used in the claims.

In light of the foregoing, it is submitted that the application is in condition for allowance.

Respectfully submitted,

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